

## PATENT COOPERATION TREATY



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INTERNATIONAL PRELIMINARY EXAMINATION REPORT  
(PCT Article 36 and Rule 70)

D 09 JUL 2004

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Applicant's or agent's file reference E-1778/03	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP 03/50382	International filing date (day/month/year) 20.08.2003	Priority date (day/month/year) 29.08.2002
International Patent Classification (IPC) or both national classification and IPC B65C9/40		
Applicant AZIONARIA COSTRUZIONI MACCHINE AUTOMATICHE...		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 8 sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"><li>I <input checked="" type="checkbox"/> Basis of the opinion</li><li>II <input type="checkbox"/> Priority</li><li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li><li>IV <input type="checkbox"/> Lack of unity of invention</li><li>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li><li>VI <input type="checkbox"/> Certain documents cited</li><li>VII <input type="checkbox"/> Certain defects in the international application</li><li>VIII <input type="checkbox"/> Certain observations on the international application</li></ul>		
Date of submission of the demand  26.03.2004	Date of completion of this report  12.07.2004	
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Martínez Navarro, A.  Telephone No. +31 70 340-2876  	

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/EP 03/50382**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

5-8 as originally filed  
1-4 received on 18.06.2004 with letter of 15.06.2004

**Claims, Numbers**

1-13 received on 18.06.2004 with letter of 15.06.2004

**Drawings, Sheets**

1/2, 2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
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5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

**see separate sheet**

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-13
	No: Claims	
Inventive step (IS)	Yes: Claims	1-13
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**Re Item I**

**Basis of the report**

- I.5.1 The amendments filed with the letter dated 15.06.2004 introduce subject-matter which extends beyond the content of the application as filed, contrary to Article 34(2)(b) PCT. The amendments concerned are the following:
- I.5.1.1 Claim 1.- "each container is identified **only** on the basis of **the physical features** of the container or **only** ..... ; each labelling station **being loaded with a same type of pre-printed labels and applying to the relevant containers always the same pre-printed label in a given same position**".
- I.5.1.2 Claim 7.- "recognition device is able to identify each container **only** on the basis of **the physical features** of the container or **only** ..... ; each labelling station **being loaded with a same type of pre-printed labels and being able to apply to the relevant containers always the same pre-printed label in a given same position**".
- I.5.2 The application as filed discloses that the containers are identified by some features, but does not disclose that the containers are identified by "only", i.d. exclusively, those features.
- I.5.3 The application as filed only discloses that the container may be identified according to its colour, shape, or size, but not according to other physical features as rugosity, weight, hardness, bright, etc.
- I.5.4 The application as filed does not expressly and unambiguously disclose that each labelling station is loaded with a same type of pre-printed labels and applies to the relevant containers always the same pre-printed label in a given same position. The application as filed only gives as a mere example of a labelling device that could be used in the invention the labeller described in patent document EP 1 122 175 A1. Not only the contents of this document cannot be considered unconditionally as a part of the disclosure, but also the document mentioned above does not disclose that the labels are pre-printed, that they are always the same, and that they are applied in a given same position.

I.5.5 Therefore, the present International Preliminary Examination Report is drafted as if the aforementioned unduly added subject-matter had been removed and if the characterizing parts of independent claims 1 and 7 read:

I.5.5.1 Claim 1.- **"the method being characterized by the fact that each container is identified by processing information from operating machines (3) located upstream from the labelling path (P)."**

I.5.5.2 Claim 7.- **"the machine being characterized by the fact that the recognition device (28) is able to identify each container by processing information from operating machines (3) located upstream from the labelling path (P)."**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

V.2.1 Reference is made to the following documents:

D1: US-B1-6 419 782 (JOHNSON DAVID A ET AL) 16 July 2002

V.2.2 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):

V.2.2.1 A method of labelling a succession of containers (30; column 1, line 18); the method comprising the following steps:

identifying each container (30) to assign to the container one of a number of possible types before the container is fed along a labelling path (12; column 8, lines1-6);

feeding each container along the labelling path (12) through a number of labelling stations (22), each for applying a respective label (36) to a container (30) travelling through the labelling station (22);

assigning a category of containers (30) to each labelling station (22; column 6, lines18-20);

and only activating each labelling station (22) to apply the label (36) to the container travelling through the labelling station (22) if the container (30) falls within the category of containers assigned to the labelling station (22; column 8, lines 11-17).

- V.2.3 The subject-matter of claim 1 therefore differs from this known labelling method in that each container is identified by processing information from operating machines located upstream from the labelling path.
- V.2.4 The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).
- V.2.5 The problem to be solved by the present invention may therefore be regarded as to avoid the duplicity of identifying steps in both operating machines upstream the labelling path and in the labelling path proper, allowing at the same time the integration of the different container treating processes such as container forming, washing, sterilizing, filling, closing or marking with the labelling process.
- V.2.6 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) because in the prior art the identification of containers for purposes of assignation to different labellers has been always treated as a step exclusively associated to the labelling process. It has not been suggested that the said identification could be carried out in places out of the labelling path and the possible advantages of this new feature have not been disclosed before.
- V.2.7 The same reasons are valid for the novelty and the inventivity of the subject-matter of claim 7. Claims 2 to 6 and 8 to 13 are dependent on claim 1 and 7 respectively and as such also meet the requirements of the PCT with respect to novelty and inventive step.

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METHOD AND MACHINE FOR LABELLING A SUCCESSION OF  
CONTAINERS BY MEANS OF A NUMBER OF INDEPENDENT LABELLING  
STATIONS

5        TECHNICAL FIELD

The present invention relates to a method of  
labelling a succession of containers.

The present invention may be used to particular  
advantage for labelling a succession of bottles in a  
10 bottling plant, to which the following description refers  
purely by way of example.

A bottling plant comprises a number of bottling  
lines, each comprising a succession of machines arranged  
in series. More specifically, each bottling line may  
15 comprise a filling machine for receiving empty bottles  
from a store and filling each with a predetermined amount  
of a liquid product; a capping machine for applying a cap  
to each bottle; a labelling machine for applying one or  
more labels to each bottle; and, possibly, a packing  
20 machine for packing a group of bottles to form a  
respective package.

BACKGROUND ART

Known labelling machines, such as the type described  
in DE19927668, DE3925842, US5478422A1, US5259913A1 or  
25 EP1167213A1, comprise a vertical-axis carousel conveyor  
for feeding the bottles along an annular path through at  
least one labelling station, where a label is applied to  
each bottle. Known labelling machines may comprise either  
one labelling station, or two (or more) for applying, for  
30 example, a front and rear label to each bottle.

Known bottling plants of the above type are relatively bulky and expensive by requiring an independent bottling line for each type of liquid product. Alternatively, the same bottling line may be used for  
5 different liquid products, but only at the expense of frequent type changes (i.e. to adapt the bottling line to a different liquid product), thus obviously reducing overall output.

US-6419782-A1 discloses an automatic label printing  
10 and application system, which applies a custom label at a dynamically determined location on articles being moved along a conveyer. The system includes a bar code scanning system, preferably a group of bar code scanners each arranged to read at an assigned elevation above the  
15 conveyer belt; this configuration allows the system controller to generally determine the vertical height of pre-printed bar code on the article. The system uses photoelectric sensors to detect articles being moved along the conveyer, as well as an encoder and bar code scanning  
20 data to determine the horizontal position of the pre-printed bar code on the surface of the article; in this manner, the system dynamically determines both the vertical and horizontal position of the pre-printed bar code on the surface of the article. The system further  
25 includes a series of label printing and application stations that are configured to print customized labels on the surface of the article in a horizontal and vertical position to cover the pre-printed bar code, at least partially. In general, the stations are adjusted to apply  
30 labels at different elevations above the conveyer belt;

the application elevation of labels is selected by selecting the appropriate label printing and application stations. The horizontal position of the label on the article is determined by coordinating encoder pulses in response to signals from photoelectric sensor for the  
5     respective label printing and application unit. The system also preferably includes a verification bar scanner at the downstream end to verify that an accurate label has been properly positioned on the article.

10       US-6220330-A1 discloses an apparatus for applying labels to articles being moved in a single-file along a conveyor assembly by a primary conveyor belt; articles such as video cassette containers or CD containers are conveyed in an upright singulated fashion along a conveyor  
15     assembly. Each individual article enters a labelling station where the article contacts a biasing assembly that includes a biasing belt. The biasing belt exerts a lateral force on the article to press the article into contact with a stationary guide assembly; the biasing belt is  
20     operated at substantially the same speed as the primary conveyor belt such that the article is held in contact with the stationary guide assembly as the article moves along the labelling station. A labelling unit applies a label to the article as the article is held in contact  
25     with the stationary guide assembly by the biasing belt.

#### DISCLOSURE OF INVENTION

It is an object of the present invention to provide a method of labelling a succession of containers, designed to eliminate the aforementioned drawbacks, and which, in  
30     particular, is cheap and easy to implement.

According to the present invention, there is provided a method and a machine for labelling a succession of containers as recited in the attached claims.

#### BRIEF DESCRIPTION OF THE DRAWINGS

5 A non-limiting embodiment of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a schematic plan view, with parts removed for clarity, of part of a bottling plant featuring the labelling machine according to the present invention;

Figure 2 shows a larger-scale plan view of the Figure 1 labelling machine.

#### BEST MODE FOR CARRYING OUT THE INVENTION

Number 1 in Figure 1 and 2 indicates as a whole a bottling line for filling bottles 2. Bottling line 1 comprises a known filling machine 3 for receiving empty bottles 2 from an input conveyor 4, and feeding full bottles 2 to a labelling machine 5 by means of an intermediate conveyor 6. On labelling machine 5, a label 7 is applied to each bottle 2, and bottles 2 are then fed onto an output conveyor 8, which feeds bottles 2 to a known packing machine (not shown).

Filling machine 3 is a so-called multiple type for filling bottles 2 with four types of liquid of different colours, and comprises a vertical-axis carousel conveyor 9 for receiving empty bottles 2 from input conveyor 4 by means of a transfer drum 10, and for feeding full bottles 2 to a vertical-axis carousel conveyor 11 by means of a transfer drum 12. Carousel

## CLAIMS

1) A method of labelling a succession of containers (2); the method comprising the following steps:

- 5           • identifying each container (2) to assign to the container (2) one of a number of possible types before the container (2) is fed along a labelling path (P);
- 10           • feeding each container (2) along the labelling path (P) through a number of labelling stations (17), each for applying a respective label (7) to a container (2) travelling through the labelling station (17);
- 15           • assigning a category of containers (2) to each labelling station (17);
- 20           • and only activating each labelling station (17) to apply the label (7) to the container (2) travelling through the labelling station (17) if the container (2) falls within the category of containers (2) assigned to the labelling station (17);

the method being characterized by the fact that each container (2) is identified only on the basis of the physical features of the container (2) or only by  
25   processing information from operating machines (3) located upstream from the labelling path (P); each labelling station (17) being loaded with a same type of pre-printed labels (7) and applying to the relevant containers (2) always the same pre-printed label (7) in a given same  
30   position.

2) A method as claimed in Claim 1, wherein each container (2) is identified by feeding the container (2) through a recognition station (16) located upstream from the labelling stations (17) along the labelling path (P) and having at least one sensor (29) for identifying the container (2).

3) A method as claimed in Claim 1 or 2, wherein each container (2) is identified on the basis of the shape of the container (2).

10 4) A method as claimed in Claim 1 or 2, wherein each container (2) is identified on the basis of the size of the container (2).

15 5) A method as claimed in Claim 1 or 2, wherein each container (2) is identified on the basis of the colour of the container (2).

6) A method as claimed in one of Claims 1 to 5, wherein each labelling station (17) comprises a respective guide; and a respective labelling device (26), which is moved along the guide to adapt its position as a function of the shape and size of the containers (2) with respect to a conveyor (15) for feeding each container (2) along the labelling path (P).

7) A machine for labelling a succession of containers (2); the machine comprising a conveyor (15) for feeding each container (2) along a labelling path (P), a number of labelling stations (17), each located along the labelling path (P) and for applying a respective label (7) to a container (2) travelling through the labelling station (17), and a recognition device (28) for identifying each container (2) and assigning to the container (2) one of a

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number of possible types before the container (2) is fed along the labelling path (P); each labelling station (17) comprising respective control means (30) for memorizing a category of containers (2) assigned to the labelling station (17), and which only activate the respective labelling station (17) to apply the label (7) to the container (2) travelling through the labelling station (17) if the container (2) falls within the category of containers (2) assigned to the labelling station (17); the machine (5) being characterized by the fact that recognition device (28) is able to identify each container (2) only on the basis of the physical features of the container (2) or only by processing information from operating machines (3) located upstream from the labelling path (P); each labelling station (17) being loaded with a same type of pre-printed labels (7) and being able to apply to the relevant containers (2) always the same pre-printed label (7) in a given same position.

8) A machine as claimed in Claim 7, wherein the recognition device (28) comprises a recognition station (16) located upstream from the labelling stations (17) along the labelling path (P) and having at least one sensor (29) for identifying the container (2).

9) A machine as claimed in Claim 8, wherein the sensor (29) identifies each container (2) on the basis of the shape of the container (2).

10) A machine as claimed in Claim 8, wherein the sensor (29) identifies each container (2) on the basis of the size of the container (2).

11) A machine as claimed in Claim 8, wherein the

sensor (29) identifies each container (2) on the basis of the colour of the container (2).

12) A machine as claimed in one of Claims 7 to 11, wherein the conveyor (15) comprises a carousel conveyor  
5 (20) with a vertical axis (21).

13) A machine as claimed in one of Claims 7 to 12, wherein each labelling station (17) comprises a respective guide; and a respective labelling device (26), which is mounted to move along the guide to adapt its position with  
10 respect to the conveyor (15) as a function of the shape and size of the containers (2).